

### R E M A R K S

Careful review and examination of the subject application are noted and appreciated.

The present invention concerns a data controller that may be couplable to a host and coupled to a storage medium, microprocessor, local storage and a buffer memory. The data controller generally comprises a command queuing engine that creates a plurality of threads of sequential commands that exist simultaneously while minimizing interrupts associated to the commands.

### SUPPORT FOR CLAIM AMENDMENTS

New claims 21-26 are duplicates of the claims 2, 12-15 and 4 respectively as cancelled without prejudice in the November 16, 2001 amendment. As such, no new matter has been added.

### STATEMENT OF COMMON OWNERSHIP

The present application and U.S. Patent 6,029,226 issued to Ellis et al. were at the time the invention of the present application was made, commonly owned by LSI Logic Corporation, Milpitas, California.

CLAIM REJECTIONS UNDER 35 U.S.C. §103

The rejection of claim 3 as being unpatentable over Ellis et al., U.S. Patent No. 6,029,226 (hereafter Ellis) in view of Jones et al., U.S. Patent No. 5,483,641 (hereafter Jones) is respectfully traversed and should be withdrawn.

The rejection of claims 16-20 as being unpatentable over Ellis '266 in view of Jones '641 in further view of Bean et al., U.S. Patent No. 4,543,626 is respectfully traversed and should be withdrawn.

The Ellis reference is not valid prior art under 35 U.S.C. §103(c) as amended by the American Inventors Protection Act of 1999. "Subject matter developed by another person which qualifies as prior art only under one or more of subsections (e), (f), and (g) of section 102 of this title, shall not preclude patentability under this section where the subject matter and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person." (35 U.S.C. §103(c).) The Ellis reference was owned by LSI Logic Corporation at the time of invention of the present application. The present application is also owned by LSI Logic Corporation. Therefore, the Ellis reference is disqualified as prior art for a 35 U.S.C. §103(a) rejection via §102(e) and the rejections should be withdrawn.

In particular, the present application was filed on October 30, 1998 and was assigned to LSI Logic Corporation. The assignment was recorded in the United States Patent and Trademark Office at reel/frame 9780/0054. A copy of the assignment and the Notice of Recordation of Assignment Document for the parent/present application is attached to this response as Exhibit A. A Continued Prosecution Application was filed under 37 C.F.R. 1.53(d) on December 13, 2001. The filing of the CPA was after November 29, 1999 (the effective date for the change to 35 U.S.C. §103(c)). Therefore, the amendment to 35 U.S.C. §103(c) by the American Inventors Protection Act of 1999 applies.

Accordingly, the present application is in condition for allowance. Early and favorable action by the Examiner is respectfully solicited.

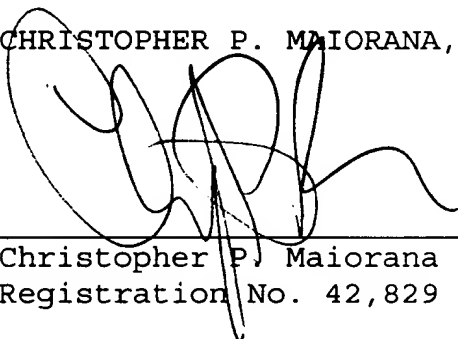
The Examiner is respectfully invited to call the Applicants' representative at 586-498-0670 should it be deemed beneficial to further advance prosecution of the application.

If any additional fees are due, please charge our office

Account No. 12-2252.

Respectfully submitted,

CHRISTOPHER P. MAIORANA, P.C.



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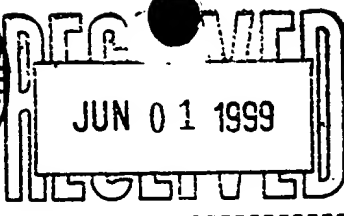
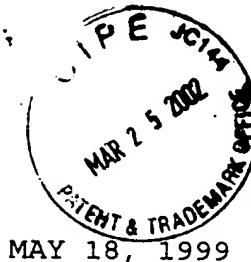
Christopher P. Maiorana  
Registration No. 42,829

Dated: March 15, 2002

c/o Peter Scott  
Intellectual Property Law Department  
LSI Logic Corporation  
M/S D-106  
1551 McCarthy Boulevard  
Milpitas, CA 95035

Docket No.: 98-179/1C / 1496.00065

98-179



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LSI LOGIC CORP.  
INTELLECTUAL PROPERTY DEPT

UNITED STATES PATENT AND TRADEMARK OFFICE  
NOTICE OF RECORDATION OF ASSIGNMENT DOCUMENT

THE ENCLOSED DOCUMENT HAS BEEN RECORDED BY THE ASSIGNMENT DIVISION OF THE U.S. PATENT AND TRADEMARK OFFICE. A COMPLETE MICROFILM COPY IS AVAILABLE AT THE ASSIGNMENT SEARCH ROOM ON THE REEL AND FRAME NUMBER REFERENCED BELOW.

PLEASE REVIEW ALL INFORMATION CONTAINED ON THIS NOTICE. THE INFORMATION CONTAINED ON THIS RECORDATION NOTICE REFLECTS THE DATA PRESENT IN THE PATENT AND TRADEMARK ASSIGNMENT SYSTEM. IF YOU SHOULD FIND ANY ERRORS OR HAVE QUESTIONS CONCERNING THIS NOTICE, YOU MAY CONTACT THE EMPLOYEE WHOSE NAME APPEARS ON THIS NOTICE AT 703-308-9723. PLEASE SEND REQUEST FOR CORRECTION TO: U.S. PATENT AND TRADEMARK OFFICE, ASSIGNMENT DIVISION, BOX ASSIGNMENTS, CG-4, 1213 JEFFERSON DAVIS HWY, SUITE 320, WASHINGTON, D.C. 20231.

RECORDATION DATE: 02/23/1999

REEL/FRAME: 9780/0054  
NUMBER OF PAGES: 5

BRIEF: ASSIGNMENT OF ASSIGNOR'S INTEREST (SEE DOCUMENT FOR DETAILS).

## ASSIGNOR:

ELLIS, JACKSON L.

DOC DATE: 02/10/1999

## ASSIGNOR:

NOELDNER, DAVID R.

DOC DATE: 02/10/1999

## ASSIGNOR:

SPRINGBERG, DAVID M.

DOC DATE: 02/10/1999

## ASSIGNOR:

WESTON-LEWIS, GRAEME M.

DOC DATE: 02/10/1999

## ASSIGNEE:

LSI LOGIC CORPORATION  
1551 MCCARTHY BLVD.  
MILPITAS, CALIFORNIA 95035

SERIAL NUMBER: 09183694  
PATENT NUMBER:

FILING DATE: 10/30/1998  
ISSUE DATE:

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MAR 29 2002

Technology Center 2100

9780/0054 PAGE 2

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Pat No.: 98-179

U.S. DEPARTMENT OF COMMERCE  
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To the Honorable Commissioner of Patents and Trademarks: Please record the attached original documents or copy thereof.

1. Name of conveying party(ies):

Jackson L. Ellis, David R. Noeldner, David M. Springberg &  
Graeme M. Weston-Lewis

Additional names(s) of conveying party(ies) ☐ Yes ☒ No

3. Nature of conveyance:

- ☒ Assignment ☐ Merger  
☐ Security Agreement ☐ Change of Name  
☐ Other \_\_\_\_\_

Execution Date: 2/10/99

2. Name and address of receiving party(ies):

Name: LSI Logic Corporation

Internal Address: \_\_\_\_\_

Address: 1551 McCarthy Blvd.

City: Milpitas State: CA ZIP: 95035

Additional name(s) & address(es) attached? ☐ Yes ☒ No

4. Application number(s) or registration numbers(s):

If this document is being filed together with a new application, the execution date of the application is: \_\_\_\_\_

A. Patent Application No.(s)

09/183,694

B. Patent No.(s)

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Additional numbers attached? ☐ Yes ☒ No

5. Name and address of party to whom correspondence concerning document should be mailed:

Name: Wayne P. Bailey

Internal Address: \_\_\_\_\_

Street Address: 2001 Danfield Court

City: Fort Collins State: CO ZIP: 80525

6. Total number of applications and patents involved: 1

7. Total fee (37 CFR 3.41):.....\$ 40.00

- ☐ Enclosed - Any excess or insufficiency should be credited or debited to deposit account  
☒ Authorized to be charged to deposit account

8. Deposit account number:

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9. Statement and signature.

To the best of my knowledge and belief, the foregoing information is true and correct and any attached copy is a true copy of the original document.

Kathleen M. Manke

Name of Person Signing

Signature

February 19 1999

Date

Total number of pages including cover sheet, attachments, and document:

5

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JAN 17 1999  
40.00 CH  
FC:501

## ASSIGNMENT OF UNITED STATES PATENT APPLICATION

WHEREAS, we, Jackson L. Ellis of Fort Collins, CO; David R. Noeldner of Fort Collins, CO; David M. Springberg of Fort Collins, CO; and Graeme M. Weston-Lewis, of Fort Collins, CO, have invented certain new and useful improvements in a **COMMAND QUEUEING ENGINE**, Docket No. 98-179, for which we have executed an application for Letters Patent of the United States on 2/10/99, 2/10/99, 2/10/99 and 2/10/99, respectively; and

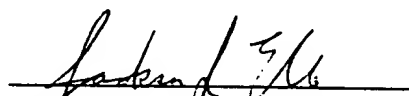
WHEREAS, LSI Logic Corporation, a corporation of the State of Delaware, having its principal place of business in Milpitas, California, is desirous of acquiring the entire right, title and interest in and to said invention and in and to any Letters Patent that may be granted therefor in the United States and any and all foreign countries;

NOW, THEREFORE, be it known that for good and valuable consideration, receipt of which is hereby acknowledged, we do hereby sell, assign and transfer unto said LSI Logic Corporation, its successors and assigns, the entire right, title and interest in and to the invention and improvements in any form or embodiment thereof, disclosed and claimed in said application, or which are disclosed and may be claimed; also the entire right, title and interest in and to any Letters Patent to be granted in the United States and its territorial possessions and in any and all foreign countries upon said invention in any form or upon any such improvements thereon, and in and to any and all divisions, reissues, continuations and extensions thereof; and we hereby authorize and request the Commissioner of Patents and Trademarks to issue any Letters Patent on said application to the said LSI Logic Corporation, of Delaware, its successors and assigns.

Further, we agree that we will communicate to said LSI Logic Corporation, or its representatives, any facts known to us

respecting said invention, and testify in any legal proceeding, sign all lawful papers, execute all divisional, continuation, substitution, renewal and reissue applications, execute all necessary assignment papers to cause any and all of said Letters Patent to be issued to said LSI Logic Corporation, make all rightful oaths and generally to do everything possible to aid said LSI Logic Corporation, its successors and assigns, to obtain and enforce protection for said invention in the United States and in any and all foreign countries.


Signed at Fort Collins, Colorado, this 10 day of February, 1999.

  
Jackson L. Ellis

STATE OF COLORADO                    )  
  ) ss:  
COUNTY OF LARIMER                 )

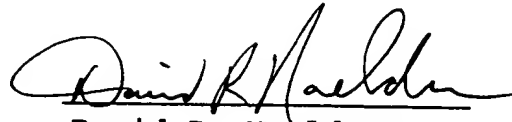
On this 10 day of February, 1999, before me personally appeared Jackson L. Ellis, to me personally known and known to be the person who signed the foregoing assignment, and acknowledged the signing thereof as his free act and deed.

(SEAL)

  
Notary Public

My Commission Expires March 3, 2002

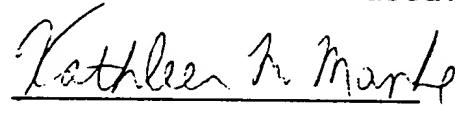
Signed at Fort Collins, Colorado, this 10 day of February, 1999.

  
David R. Noeldner

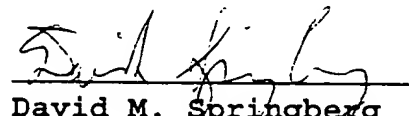
STATE OF COLORADO                    )  
  ) ss:  
COUNTY OF LARIMER                 )

On this 10 day of February, 1999, before me personally appeared David R. Noeldner, to me personally known and known to be the person who signed the foregoing assignment, and acknowledged the signing thereof as his free act and deed.

(SEAL)

  
Notary Public  
My Commission Expires March 3, 2002

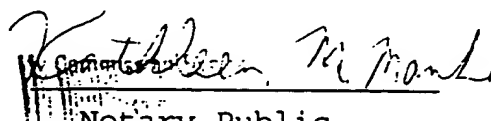
Signed at Fort Collins, Colorado, this 10 day of February, 1999.

  
David M. Springberg

STATE OF COLORADO                    )  
  ) ss:  
COUNTY OF LARIMER                 )

On this 10 day of February, 1999, before me personally appeared David M. Springberg, to me personally known and known to be the person who signed the foregoing assignment, and acknowledged the signing thereof as his free act and deed.

(SEAL)

  
Notary Public  
My Commission Expires March 3, 2002

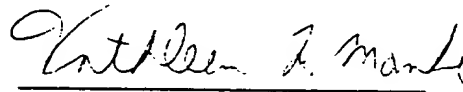
Signed at Fort Collins, Colorado, this 10<sup>th</sup> day of February, 1999.

  
\_\_\_\_\_  
Graeme M. Weston-Lewis

STATE OF COLORADO                    )  
  ) ss:  
COUNTY OF LARIMER                 )

On this 10 day of February, 1999, before me personally appeared Graeme M. Weston-Lewis, to me personally known and known to be the person who signed the foregoing assignment, and acknowledged the signing thereof as his free act and deed.

(SEAL)

  
\_\_\_\_\_  
Notary Public

My Commission Expires March 3, 2002

VERSION WITH MARKINGS TO SHOW CHANGES MADE

21. (NEW) A data controller of a peripheral device having a storage medium and a processor, wherein the data controller minimizes interrupts to the processor by re-ordering a plurality of commands received from a host computer from an order of arrival into an order of sequence in the storage medium.

22. (NEW) The data controller of claim 21, further comprising a command queueing engine configured to arrange the plurality of commands into at least one thread.

23. (NEW) The data controller of claim 22, wherein the command queueing engine comprises:

a transfer extend generator configured to generate transfer extend entries for a data transfer between the storage medium and a host computer; and

a data retrieval channel coupled to receive the transfer extend entries for programming the data transfer.

24. (NEW) The data controller of claim 23, wherein the command queueing engine further comprises a status retrieval channel.

25. (NEW) The data controller of claim 24, wherein each of the retrieval channels are coupled to receive transfer extend entries and to provide used read pointers to a first storage device of the peripheral device.

26. (NEW) A peripheral device that includes a data controller, a microprocessor, a buffer memory, local memory and a storage medium, and that is couplable to a host, wherein the data controller creates threads of a plurality of commands and generates  
.5 interrupts at the beginning and end of the plurality of commands relative to a data transfer.